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Public Service Commission of Wisconsin
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February 19, 2016

VIA ELECTRONIC FILING

Ms. Sandra J. Paske
Public Service Commission of Wisconsin
610 North Whitney Way
P.O. Box 7854
Madison, WI 53707-7854

Re: Application of Madison Gas and Electric Company to Implement a Community
Solar Pilot Project
PSCW Docket No. 3270-TE-101

Dear Ms. Paske:

The discussion at the Commission's January 21 open meeting indicated that Commissioners have questions about aspects of Madison Gas and Electric Company's application for approval to implement a Community Solar Pilot Project. Commission staff subsequently elaborated on these concerns. The enclosed supplemental information responds to the questions that have been raised.

The responses explain that the pilot program has been developed in response to the preferences that were expressed by MGE customers during the course of Company research into the kind of community solar program that would best serve their needs. MGE's customers are very interested in opportunities to participate in renewable, and particularly solar projects, but they favor programs that do not require a large, upfront payment or a long term commitment, and that allow them to exit the program at any time of the customer's choosing.

MGE's pilot project was designed with these preferences in mind. Under the Community Solar Pilot Project, interested customers pay a relatively modest participation fee to qualify to purchase their share of the energy generated by the project at a fixed price. In

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February 19, 2016

Page 2

contrast, under the programs the Commission has previously approved, interested customers essentially acquire a slice of a solar installation through a sizable upfront payment and then sell the energy generated by their portion of the project to their utility. By approving this pilot, the Company and the Commission can gain insight regarding these two very different methods and help determine which approach best meets customers' interests.

The responses explain that the pilot program has been carefully designed to avoid the risk of cross-subsidies. In addition, the Commission will be able to address any danger of inadvertent cross-subsidies resulting from possible program attrition through the potential for adjustments to sales forecasts in MGE's future rate cases.

The responses also elaborate on the considerable benefits that the smart inverters included in the project will provide to the Company's distribution system, which clearly justify allocating half the cost of the smart inverters to MGE's non-participating ratepayers. New power inverter technology provides utilities with innovative tools to manage customer voltage and system frequency. This is a fundamental and critical role for utilities operating distribution systems. Controlling and testing smart inverters to regulate MGE's system voltage and frequency will allow the Company to understand and better quantify their future benefits for all customers.

MGE appreciates the opportunity to provide these supplemental responses and looks forward to the Commission's continued consideration of its application.

Very truly yours,



Edwin J. Hughes

EJH:lsb
Enclosure

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Application of Madison Gas and Electric
Company for Approval to Implement
a Community Solar Pilot Project

Docket 3270-TE-101

**SUPPLEMENTAL INFORMATION OF MADISON GAS AND ELECTRIC
COMPANY**

Applicant Madison Gas and Electric Company (MGE) submits the following supplemental information that responds to questions raised by Commissioners at the Commission open meeting of January 21, 2016, and by Commission staff .

1. Is the requirement that eligibility is based on a customer not already having solar panels on their residence discriminatory and why does a customer's choice to already have some solar exclude them from subscribing?

Response

It is not MGE's intention to establish discriminatory eligibility requirements. MGE is willing to remove this restriction from the community solar tariff and make it available to all residential Rg-1 customers with a single meter and single location.

Background

MGE's customers have expressed strong support for the Company expanding opportunities to participate in renewable energy projects. MGE's Community Solar Pilot Project responds to this interest. The capacity of the project is expected to be 500 kW. At an average subscription of 2 kW, this will provide the opportunity for about 250 customers to participate.

In light of the limitation on the number of participants that the capacity of the project imposes, the Company thought it made sense to make the program available to residential customers who are otherwise shut out from the solar market because they do not own their own homes or because their roofs are not suitable for solar installations. In addition, it seemed that customers who already own residential solar systems would be unlikely to have significant company-supplied demand that output from the community solar project could displace. Nevertheless, the Company is willing to amend its proposed Cs-1 tariff to

make the program available to all residential Rg-1 customers with a single meter and a single location in order to eliminate any concern about discriminatory eligibility requirements for the program. The revised Cs-1 tariff attached reflects this change.

2. How do the general ratepayers benefit from the solar panels on the Middleton Police Station roof? The Commission felt that the record lacked satisfactory explanation.

Response

In its Application, MGE stated that it was also partnering with the City of Middleton on a 100 kW solar installation on the roof of the Middleton Police Department Building. MGE mentioned this to provide a fuller picture of its negotiations regarding solar projects with the City of Middleton. However, the police station installation is a separate project from the Middleton community solar project. The Commission need make no decision regarding this police station project in connection with its ruling on the Application. If MGE proposes to include the cost of the project in its rate base in a future rate case, the Commission at that time will have the opportunity to determine whether the investment in the project is used and useful for the Company's ratepayers.

Background

MGE and Middleton plan to enter into a rooftop lease under the terms of which MGE will install a 100 kW solar array on the roof of the Middleton Police Department. MGE will pay rent for the use of the roof. Middleton will have the option to purchase the system after seven years at a price equal to the array's net book value (system cost minus accumulated depreciation). In light of their system value, MGE will retain ownership of the inverters.

The Middleton Police Station project, like the Middleton community solar project, will enable MGE to learn from real-world projects about smart inverter value and performance, installation cost challenges and trends; actual maintenance needs and costs; actual generation data and typical production curves; operational challenges, particularly during winter months; and the distribution system impacts of different-sized solar installations.

If MGE decides to seek inclusion of the police station project assets in its rate base, it will include the request in a future rate case filing. The issue can then be addressed through the rate case process. Absent a rate case determination by the Commission that the police station project assets are used and useful for MGE customers and so are appropriately included in the Company's rate base, MGE's customers will not bear any of the costs of the project.

3. Is the Middleton community solar project designed to be replicable?

Response

Yes. The costs associated with the components of community solar projects will vary from project to project. However, the overall design of MGE's community solar project – whereby, in return for payment of a relatively modest Participation Fee, customers are offered the opportunity to purchase a specified amount of solar-generated energy at a fixed price over several years – is replicable and scalable.

Background

The cost components of MGE's community solar project include land, the solar array, smart inverters, projected O&M, and MGE's return. Costs will vary by component in subsequent projects. The Middleton project benefits from free use of the roof of the Middleton Municipal Operations Center ("MMOC") and an \$85,000 contribution from MGE's shareholders. These advantages may not be available in subsequent projects. On the other hand, the cost of PV equipment is likely to continue its downward trend.

How the various cost components will interact will have to be determined on a project-by-project basis. If the costs of future proposed projects are such that participation can be offered to customers with participation fees, energy charges, and paybacks acceptable to them for their participation in a voluntary program, then it is likely that MGE will proceed to offer the programs to its customers. Assuming that the Middleton community solar project ends up meeting MGE's expectations, there is no reason why subsequent projects utilizing the same basic design cannot be developed and put into service.

4. The Commission is concerned that the record didn't adequately demonstrate that the 12 cent charge for 25 years is reasonable and won't result in a cross subsidy.

Response

The financial structure of the Middleton community solar project has been designed on a break-even basis, so that participants paying their participation fees and the 12 cents/kWh energy charges will just cover the cost of the program, assuming an \$85,000 contribution from MGE shareholders and allocation of half the cost of smart inverters to ratepayers.

If the Application is approved, MGE will assume in its upcoming rate case that the program will be 100% subscribed so that nonparticipating ratepayers will bear none of the cost if initial participation falls short. As explained in the response to Question 8,

early withdrawals of participants from the program are more likely to benefit than disadvantage nonparticipating ratepayers. Nonetheless, the Commission can adjust projected sales revenues in MGE's future rate cases to ensure against inadvertent cross-subsidies.

Background

The derivation of the 12 cents/kWh energy charge

The installed cost of the Middleton community solar project is reasonable. As shown on Exhibit A to the Application, the fully loaded cost of the project is \$945,000. This works out to \$1,890 per kW of capacity, or \$1.89 per watt. A July 15, 2015 study prepared by the Brattle Group¹ includes a 2014 utility-scale solar system average cost estimate of \$2.88 per watt.

Since solar arrays have no fuel costs, recovery of the capital costs of the array is the primary cost driver. MGE has worked with H&H Electric to develop the costs of constructing the array and is confident that the actual cost of the project will not exceed the fully-loaded cost of \$1,890/kW of capacity as shown on Exhibit A of the Application.

Since MGE will own the community solar project, it is entitled to a return of and on this investment until it is fully depreciated. Application Exhibit B, Schedule 1 shows the annual revenue requirements generated by: (1) straight-line depreciation of the \$945,000 investment over fifteen years, (2) MGE's annual authorized return on the undepreciated investment amount over those years, calculated at MGE's current weighted cost of capital of 7.97%; and (3) a grossed up amount to account for MGE's tax liability, taking into account the federal investment tax credit (ITC) benefits. These calculations yield a revenue requirement of \$155,570 in year one and decreasing revenue requirement amounts in the subsequent 14 years.

MGE next added relatively modest O&M costs for each of the 25 years of the program. After taking into account MGE shareholders' contribution of \$85,000 in year 1, the Company then reduced the aggregate total of annual revenue requirements and O&M

¹ The Brattle Group, Comparative Generation Costs of Utility-Scale and Residential Scale PV in Xcel Energy Colorado's Service Area (July, 2015), available at http://brattle.com/system/publications/pdfs/000/005/188/original/Comparative_Generation_Costs_of_Utility-Scale_and_Residential-Scale_PV_in_Xcel_Energy_Colorado%27s_Service_Area.pdf?1436797265, at 19.

costs to present value at a discount rate of 7.97%, which again is MGE's weighted cost of capital. This yields a net present value figure of \$893,101, or \$1,786 per kW for the 500 kW solar array.

Finally, MGE calculated on a \$/kW basis the revenue generated by participants paying their Participation Fee as well as the locked-in 12 cents/kWh charge for the energy the solar array will generate, the annual totals of which will gradually decrease over the 25 years of the program. Once again bringing the 25-year total back to present value at a discount rate of 7.97% yields a net present value figure of \$1,786 per kW.

The exhibits shows that net present value of the cost of the project to MGE just equals the net present value of the income stream the project will generate. This demonstrates that program participants will pay the entire cost of the project, except for a) half the cost of the smart inverters, which is allocated to MGE ratepayers and b) the \$85,000 contribution from MGE shareholders.

There is a sound basis for the smart inverter cost allocation and MGE shareholder contribution.

As is described more fully below, the value of the services the smart inverters can provide to the grid justify allocating half their cost to non-participating ratepayers. Also as described below, the shareholder contribution makes sense in order to keep the payback period for program participants relatively close to the payback period for residential customers who install their own rooftop solar systems. In addition, the relatively modest shareholder contribution accounts for the likelihood that equipment costs for solar installations are likely to continue their downward trend, which will enable future projects to generate similar financials without the need for additional capital infusions.

The Commission can control against inadvertent cross-subsidies resulting from participation shortfalls through rate case sales forecasts.

MGE's financial projections for the project assume that it will be fully subscribed. The strong interest the Company's ratepayers have expressed for renewable projects like the Middleton community solar project justify this assumption. Nevertheless, the rate case process will provide opportunities for the Commission to guard against the potential danger of inadvertent cross-subsidies resulting from participation shortfalls.

If the Application is approved, then in its upcoming rate case MGE will include in its sales forecast the assumption that the project will be fully subscribed and that its entire generation output will be sold at the 12 cents/kWh energy charge that project participants will pay. This means that the impact of any shortfall in participation or project sales will fall on the Company rather than its ratepayers.

There will be customer attrition over the 25 years of the program. If customers leave the program during its first three years, their shares will be resold to other customers, who will pay the full Participation Fee. The shares of customers leaving after three years will revert to the Company.

As explained in the response to Question 8, it is likely that customer attrition will have a net positive impact on ratepayers. Nevertheless, the Commission need not address the possibility of less than full subscription in the future as part of its approval of the program at this time. The appropriate level of projected sales will be reviewed in each of MGE's subsequent rate cases, just like the level of sales for all of MGE's other service tariffs. In future rate cases, the Commission can determine whether it is appropriate to assume 100% program participation or some other level in order to avoid any risk of cross-subsidies resulting from program attrition.

5. Half the cost of the inverters is being charged to the utility. The Commission felt that MGE didn't adequately demonstrate the benefit to nonparticipating customers of the utility having control of the inverters.

Response

Smart inverters have the potential to provide ancillary services that will assist MGE in fulfilling its obligation to reliably operate, maintain and control the distribution grid. However, in order for the smart inverters utilized in the project to provide the substantial system benefits their capabilities promise, they must be controlled and operated by MGE, since only the utility can unlock their features. This justifies including the full cost of the inverters in MGE's rate base. For purposes of this pilot project, however, the Company has proposed that the cost of the inverters be split 50-50 between program participants and nonparticipating ratepayers. As experience with smart inverters demonstrates their benefits to the distribution system, an increasing percentage of their cost should properly be allocated to utility rate base in future proceedings.

Background

The smart inverters that will be incorporated into MGE's community solar project serve dual purposes. Besides converting the DC produced by solar panels into AC so that it can be connected to the grid, smart inverters can provide benefits for all customers. Managing customer voltage and frequency is one of the fundamental and critical roles of an electric utility. Smart inverters provide several methods that can be used to manage customer voltage and system frequency if the inverter is accessible to the utility. These inverter functions are relatively new and this project provides an excellent opportunity to determine how these methods can be best used to improve service to all customers. The benefits to all customers include not only the research knowledge but also the actual system operational benefits of improved voltage and frequency regulation.

Smart inverters like those to be used in the project provide the following capabilities:

- **Voltage Regulation** - Inverters can provide voltage regulation and support capability (volt/var). To meet voltage standards, distribution circuits need some form of voltage regulation capability. Smart inverters can provide that capability or augment existing capability. The number of mechanical substation tap changer operations and hence the necessary amount of substation tap changer maintenance can be reduced with this additional regulating capability. Voltage support can be provided as an autonomous function where the inverter determines the level of voltage support or it can be remotely controlled based on system needs. MGE's ability to maximize these capabilities will benefit from the opportunity to evaluate and test the Middleton smart inverters in an active distribution setting.
- **System Stability** – Current inverter designs disconnect when a frequency disturbance is detected. This can result in worsening the disturbance and possibly lead to system collapse. In Germany, the prevalence of solar installations led to a situation where system collapse could result from the simultaneous disconnection from the grid of multiple solar installations if system frequency rose above specified limits. To address the problem, Germany undertook to replace or retrofit the inverters on more than 300,000 solar installations. Smart inverters avoid this risk and provide important system benefits, since they have the capability to stay on line and support the grid during system frequency events. Determining the proper settings is critical in assuring that inverters can help system stability. Experience with these settings on the smart inverters used in the Middleton community solar project will be valuable to MGE as more inverters are connected

throughout its system and plans are developed to utilize the inverters to improve system stability.

- Low Voltage Ride Through – This capability allows smart inverters to help if nearby fault on the system causes depressed voltage. Inverters without this feature disconnect when a disturbance is detected, making the situation worse.
- Ramp Rate Control – Re-energization of a large number of inverters after an outage can make recovering from an outage more difficult. Smart inverters have the capability to gradually ramp up output to soften the outage recovery.
- Two-Way Communications – This capability allows smart inverters to be remotely controlled and parameters to be adjusted as conditions warrant. It enables inverter software to be updated as improvements occur. Communication also provides additional insights into distribution system performance. Remote on/off control can be implemented to control when inverters are connected or disconnected from the system during outages. Power output could also be limited if system conditions require it.

As this description illustrates, smart inverters have functions that can provide significant benefits to the grid and to MGE's other customers, so long as those functions remain under the operation, maintenance and control of MGE. (Additional information on the benefits of smart inverters can be found here: http://www.epri.com/About-Us/Documents/Summer_Seminar_2014/Session%203.3_Smith_FINAL.pdf.)

Typically, the cost of equipment that the utility operates to enhance grid performance is added to rate base and allocated among the groups of customers who benefit most. For purposes of this pilot project, however, MGE has proposed that the cost of the smart inverters be split 50/50 between program participants and nonparticipating ratepayers. While this equal split is plausible as an initial position, the appropriate cost allocation of smart inverters can be expected to change as larger-scale solar projects become more prevalent and sensibly-deployed smart inverters prove their value to the grid.

6. Is the MGE stated 17 year payback for subscribing customers too long?

Response

No. The projected payback is comparable to those available for residential rooftop solar systems. Participation in the program is voluntary. If potential customers find that the payback is too long for them, they will not sign up for the program.

Background

In focus groups and a survey conducted in 2015, MGE asked customers about their reasons for participating in a community solar program similar to the one described in MGE's filing. Among likely participants, non-monetary benefits were very important. The three most appealing aspects were supporting clean energy, reducing dependence on fossil fuel, and supporting solar without requiring locating it on their property.

Among those likely to participate, financial benefits (the payback) were also somewhat important—as were a low upfront fee and an ability to withdraw from the program at the participant's discretion without financial penalty (described more fully in the response to Question 8). MGE's program design is an attempt to balance these three program design variables. The Company will learn how successful it has been in finding this balance with this pilot program.

Community solar program participants will make two types of payments:

1. A one-time, up-front, non-refundable Participation Fee calculated on the basis of 10% of the participant's share of the community solar project cost, and
2. A fixed \$0.12 per kilowatt-hour (kWh) energy charge for the solar energy over the 25-year life of the project.²

MGE projects that the fixed \$0.12/kWh solar energy charge will be less than the participant's standard electric rate after 10 years, resulting in a net bill savings in subsequent years. In year 17, those cumulative bill savings are projected to offset the participant's upfront Participation Fee payment and the higher-cost solar energy purchased in years 1 through 10. These calculations are based on a number of variables and should be considered only estimates.

Customers who install solar on their own homes can expect a similar payback on their investment, though there is considerable variability in payback calculations for individual rooftop systems.

For residential rooftop systems, the customers' cost is almost 100% upfront—in the cost of the installations. Once customers make this initial investment, their utility costs are reduced because they pay for less utility-produced electricity. Using the U.S DOE's National Renewable Energy Lab's PV Watts calculator at <http://pvwatts.nrel.gov/>, a customer purchasing a 3 kW system for their home would see a payback of about 15

² Since the solar energy that program participants will purchase will be locally generated, they will also pay a transmission service charge that represents a 50% discount from the transmissions service charge paid by Rg-1 customers. Initially, this transmission service charge will be 0.8 cents/kWh.

years (assuming MGE's average Rg-1 electricity rate, inverter replacement in year 12, 3% annual increase in electric rates, optimal PV system orientation, and the customer takes advantage of the investment tax credit).

In the foregoing example, the PV Watts calculator assumes PV systems installed in MGE's service territory generate 1,300 kWh each year per kW of system capacity. This is about 36% higher than what is actually produced on average (955 kWh/year/kW) by 167 PV systems (representing 986 kW installed capacity) that sell the energy generated back to MGE pursuant to MGE's Pg-4 tariff. The lower actual generation figures reflect the fact that most roofs hosting PV systems are not ideal. The use of this actual average production figure in the example above would extend the payback period to more than 20 years.

7. More clearly describe how the program will work and how customers are enrolled, what the exact costs are and that participating customers pay the cost of the solar installation on the MMOC roof.

Response

MGE customers will choose to participate in this voluntary program by selecting an appropriate number of "blocks" of capacity and paying the corresponding Participation Fee. They then will purchase the generation output of their share of the project at the fixed 12 cents/kWh charge. This differs from the other community solar projects the Commission has approved, where participants make a larger up-front investment and then sell their share of the generation to the utility, rather than purchase the generation for their own use.

Background

How the Program Will Work

Enrolling customers will decide how much electricity they would like to receive from the community solar project (up to 50% of their annual electricity needs). To do this, they will select the number of "blocks" (quarter-kW, or 250 watts of the community solar project's capacity) which would generate up to this amount of solar electricity every year.

For example, a customer who uses 6,600 kWh per year can elect to purchase up to 3,300 kWh of solar energy annually. Each quarter-kW block of the project's capacity will produce 325 kWh per year. This customer could choose up to 10 blocks (325 kWh/year x 10 blocks = 3,250 kWh/year).

MGE will bill participants a one-time Participation Fee of \$47.25 per quarter-kW "block" on their energy bill. This payment is the participant's up-front, non-refundable 10%

share of the cost of the community solar project. For a customer choosing 10 blocks, their Participation Fee would be \$472.50.

When the project is built, participants will be billed the \$0.12/kWh fixed energy charge for the energy generated on their behalf each month for as long as they remain in the program. The rest of their electricity use will be billed at their standard electricity rate.

Participants may leave the program whenever they choose. If they do, they forfeit their Participation Fee. They can participate as long as they remain an MGE electric customer—if they move within the MGE service area, MGE will transfer their community solar energy billing to their new address.

If a participant decides to end their participation or moves out of MGE’s electric service area within the first 3 years, their “blocks” will be re-assigned to an interested customer on a waiting list. The new participant will pay the applicable Participation Fee for the number of blocks they choose and will be billed for the associated energy at the fixed \$0.12 rate for the remaining life of the project, or until they leave the program.

How This Program Differs from Others the Commission Has Approved

The Commission has previously approved community solar projects proposed by Northern States Power Wisconsin (“NSPW”) (Docket No. 4220-TE-101) and WPPI Energy on behalf of its members New Richmond Municipal Electric Utility (Docket No. 4139-TE-102) and River Falls Municipal Utility (Docket No. 5110-TE-102). MGE’s community solar proposal is structured differently than these projects.

In NSPW’s program, subscribers pay an upfront fee equal to the total cost of their share of the Power Purchase Agreements NSPW will enter into with third-party solar developers, plus the costs to administer the program. Subscribers will then receive a solar program bill credit for their share of the PPA output based on NSP’s embedded costs. Small customers receive a bill credit of 7.4 cents/kWh and large customers receive a bill credit of 6.9 cents/kWh. The bill credits are to be updated as needed during future rate cases based on changes to NSP’s embedded cost, but will not dip below the initial amounts.

The projects sponsored by WPPI are structured similarly. Participants effectively purchase a portion of the community solar project and then sell their share of the output to the utility. They receive a credit on their bills based on the utility’s avoided costs. The credits are subject to periodic adjustments to account for changes in those costs.

In contrast, participants in MGE’s program are qualifying to *purchase* their share of the energy generated from the project, not to *sell* it to MGE. MGE remains the owner of the system. The participants pay a Participation Fee that qualifies them to buy the output

from their allocated share of the array at the set price of 12 cents/kWh. Because this price is based on the cost of the system, which is known at the outset of the program, it can be calculated on a levelized basis and remain constant for the 25-year life of the program.

From a customer's perspective, MGE's project has advantages over the NSPW and WPPI programs. Most significantly, the upfront payment is much lower – approximately 10 percent of the overall cost of the project rather than 100 percent. In addition, an attraction of MGE's program is that it is structured in a way that conveys to participants that they are actually using solar-generated electricity, not simply investing in a solar project that will sell its output to a utility.

8. From discussion with PSC staff after the meeting MGE needs to better explain how customers can exit the community solar program once they are enrolled and what costs they incur. MGE needs to better explain the benefits to nonparticipating customers when a participating customer leaves the program.

Response

MGE customers can choose to withdraw from the community solar program at any time, with no continuing financial obligations. The net impact of program attrition on the Company's non-participating ratepayers is likely to be positive.

Background

Once program participants have paid the Community Solar Participation Fee of \$47.25 per quarter kW share subscribed, they have no continuing obligations and are free to leave the program at any time. (They are required to leave the program if they move outside of MGE's service territory.) No portion of the Participation Fee will be refunded to departing participants but they will incur no further costs associated with the program. MGE will modify the Cs-1 tariff language to clarify these elements of the plan, as shown in the attached revised tariff.

If participants leave within the first three years of the program, MGE will re-market their shares of the project. New participants taking over the shares will be required to pay a full Participation Fee. MGE will not re-market the shares of participants who leave the program after three years.

The impact of departing participants on the Company's other ratepayers depends upon the timing of their departures. When participants leave the program after more than three years, the Company loses customers paying 12 cents/kWh for the electricity generated by

their shares of the project. That electricity can thereafter be thought of as being sold to other MGE residential customers at the then-existing Rg-1 electricity service charge.

If that charge is more than 12 cents/kWh, then the Company and its other ratepayers will be financially better off. From the perspective of MGE's other ratepayers, the best time for participants to withdraw from the program is when the Rg-1 electricity service charge first exceeds 12 cents. The other ratepayers benefit from the departure starting at that point and continuing until the project terminates after 25 years.

If a participant withdraws from the program after three years but before the Rg-1 electricity service charge exceeds 12 cents/kWh, the Company's other ratepayers are worse off until the Rg-1 electricity service charge exceeds the 12 cent threshold. From that crossover point until the program ends, the other ratepayers are better off. Netting the losses from the first period against the gains from the second period yields the overall impact on the Company's other ratepayers from the participant's withdrawal from the program.

As this description implies, the overall impact on the Company's other ratepayers from participants' early withdrawals from the program cannot be calculated with any certainty without knowing the participant attrition pattern or the Rg-1 electricity service charge over the next 25 years. Nonetheless, as Exhibit C to the Application illustrates, it appears quite likely that the overall impact of participant attrition will be beneficial for the Company's other ratepayers. As explained in the response to Question 4 above, the Commission does not need to address the possibility of less than full subscription as part of the requested approval at this time. The appropriate level of projected sales revenue will be reviewed in all of MGE's subsequent rate cases just like the sales revenue from all other service tariffs. Based upon the actual costs presented in each case, the Commission can determine whether it is appropriate to include 100% subscription or some other level in sales forecasts as necessary to ensure against inadvertent cross-subsidies.

Dated: February 19, 2016.

STAFFORD ROSENBAUM LLP

/s/ Edwin J. Hughes

By _____
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Community Solar Service Rider Pilot 1 (Rate Schedule Cs-1)

AVAILABILITY

Available to customers served under the Residential Service Rg-1 rate schedule ~~who do not have a renewable energy generation source located at or directly connected to their service location~~ who want to designate up to the lesser of 50% of their available average annual energy usage or 3 kW of production to come from the Middleton Community Solar Project located on the City of Middleton's Municipal Operations Center rooftop.

The Company may also further limit individual subscription levels based on specific monthly usage variations and will work with interested customers to select an appropriate quarter kW subscription level. Participation is limited to single meter, single location customers.

Service on this CS-1 rate schedule will be available on a first-come, first-served basis to customers who execute a service agreement. Approximately 500 kW of total service is available in this project.

This tariff pertains to the community solar portion of the customer's energy use. Service will be provided based on the customer's subscribed quarter kW share of the project. Customers will receive a percent of the energy produced by the project based on the percentage share their individual subscription represents of ongoing production volume.

RATE

Community Solar Participation Fee \$47.25 per quarter kW share subscribed

All provisions of the applicable Rg-1 rate schedule will apply with the exception of the following modification: The solar energy supplied under this rider pursuant to the customer's subscribed share of the project will replace an equal amount of kWh for which the customer would otherwise be billed the Rg-1 electricity service charge. The solar energy will be billed in accordance with the following rates:

Transmission Service: Cs-1 kWh, per kWh 0.800¢

Cs-1 Electricity Service: Cs-1 kWh, per kWh 12.000¢ (see Special Terms and Provisions No. 6)

All energy purchased under this rider is exempt from fuel cost surcharges and credits.

PAYMENT

Payment is due not later than the due date shown on the bill. Any Company billing charges unpaid after the due date will be subject to a late payment charge as described in the Company's electric service rules under Late Payment Charge.

SPECIAL TERMS AND PROVISIONS

1. Customers must execute a Cs-1 service agreement to subscribe to service on this rider.

Community Solar Service Rider Pilot 1 (Rate Schedule Cs-1)

2. Service on this rate schedule will commence with the first regular meter reading following approval of the customer's service agreement by the Company and after the Middleton Community Solar Project goes into service. Service will terminate at the earlier of a) the customer's withdrawal from the program as a result of either the customer's choice or the customer leaving the Company's service territory or b) 25 years later after the commencement of operations-
3. Any customer choosing to be served on this rate schedule thereby waives all rights to any billing adjustments arising from a claim that the bill for the customer's service would be cheaper on any alternative rate schedule for any period of time, including any rights under Wis. Admin. Code § PSC 113.0406(4), Reg. January 2004, No. 577.
4. Prior to or coincidental with service commencing, the customer must pay the one-time, ~~nonrefundable~~ Community Solar Participation Fee. If an adequate amount of subscriptions are not obtained for this program, the Company may terminate it and refund this fee to customers who paid it. Otherwise, the participation fee is nonrefundable. Customers, however, may leave the program at any time.
5. Service hereunder is provided through one meter to one end-use customer. Service provided hereunder may not be redistributed or resold.
6. The Cs-1 Electricity Service per kWh charge will remain locked for the entire term of the customer's participation in the Cs-1 program, regardless of other changes that may from time to time be approved by the Public Service Commission of Wisconsin to either the Rg-1 Residential Service charges or the Cs-1 Transmission Service per kWh charges.
7. The customer's solar share will be converted into kWh Cs-1 use per billing period based on the customer's proportionate subscribed share of the project. This volume will be the lesser of the calculated share volume or the all kWh of electricity used by the customer per billing period.
8. If a customer moves to another location within the MGE service territory, the quarter kW Cs-1 project share at the new location will be limited to an amount equal to the lesser of the amount at the old location or 50 percent of the amount at the new location. Customers cannot transfer their share of service to other customers. There will be no adjustment to the previously paid Community Solar Participation Fee.
9. All renewable energy credits associated with energy produced by the Middleton Community Solar Project and purchased by customers participating in this program will be retired annually.
10. Due to the fact this service is optional and may increase utility bills, the Company may limit customer participation in the program based on bill payment and collection histories.